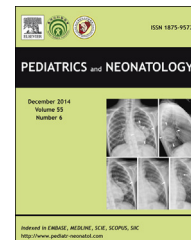


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## EDITORIAL

# Oxidative Stress and Perinatal Disease



Oxidative stress is defined as an imbalance between oxidants and antioxidants. It occurs when the production of free radicals exceeds the capacity of antioxidant defenses. It has been linked to various perinatal diseases such as bronchopulmonary dysplasia, retinopathy of prematurity, intraventricular hemorrhage, necrotizing enterocolitis, periventricular leukomalacia, and many human diseases.<sup>1</sup>

Pregnancy is a physiological state that is accompanied by a high-energy demand and increased oxygen requirement. Various compensatory adaptive changes also occur with advancing pregnancy to meet the increasing requirements of the mother and fetus. This may be responsible for increased oxidative stress in pregnancy. Several clinical studies document by different biomarkers that oxidative stress and the overproduction of oxidant radicals occur in all human diabetic pregnancies, which include gestational diabetic pregnancy, and in diabetes type 1 and diabetes type 2.<sup>2,3</sup>

This issue of *Pediatrics and Neonatology* includes a study by Topaloglu and colleagues,<sup>4</sup> entitled "Mean Platelet Volume and Ischemia Modified Albumin Levels in Cord Blood of Infants of Diabetic Mothers." Their principal findings were that these two biomarkers proved useful for representing the potential oxidative stress of the infant of a diabetic mother.

Platelets play an important role in the integrity of normal homeostasis, and the mean platelet volume (MPV) has been documented in patients with metabolic syndrome, stroke, and diabetic mellitus.<sup>5,6</sup> In the past few years, ischemia-modified albumin (IMA) has emerged as a new biomarker of ischemia in monitoring acute coronary syndrome and in complicated labor or placental ischemia. The IMA level in cord blood can also be used as an indicator of fetal hypoxia and fetal tissue ischemia and it can serve as a biomarker of the severity of these conditions.<sup>7</sup>

These two biomarkers represent a valuable addition to other oxidative stress biomarkers because of the ease and quick assay of these biomarkers in the cord blood. However, further investigations with a large series are warranted to generate a receiver operating characteristic (ROC) curve, and prospective studies are needed to correlate MPV and IMA levels for predicting the severity of complicated pregnancy and its clinical outcome.

## Conflicts of interest

The author has no conflicts of interest relevant to this article.

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Jul 11, 2014

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<http://dx.doi.org/10.1016/j.pedneo.2014.07.001>

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